Update for Science Advisory Committee

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TEXAS INSTREAM FLOW PROGRAM

TCEQ
TEXAS WATER DEVELOPMENT BOARD
TEXAS PARKS & WILDLIFE
Where we are on the TIFP timeline

Types of flow-ecology relationships
TIFP studies have identified

How TIFP studies relate to information needs identified by the SB3 process

Resources
TIFP Timeline

TWC Section 16.059(d)
The priority studies shall be completed not later than December 31, 2016.

Current Priority Studies
- Lower San Antonio
- Middle & Lower Brazos
- Lower Sabine
- Middle Trinity
- Lower Guadalupe

Completed Studies - 2016

Second Tier Studies
- Upper Guadalupe
- Neches
- Upper Sabine
- Bois d’Arc

Completed Studies - ?
Goal Development Consistent with Sound Ecological Environment

Collect Baseline Information and Evaluate

Study Design

Multidisciplinary Data Collection and Evaluation

Data Integration to Generate Flow Recommendations

Final Study Report

Peer Review

Study Design Workgroup

Data Collection/Field Demonstration Workshops

Data Integration Workshops

Stakeholder Review

Identify/Engage Stakeholders & Orientation Meetings

TIFP Study Process
Lower San Antonio River

Data Integration Workshops

Ongoing Applied Research
• Sediment Transport Evaluations
• SFA Large Woody Debris Evaluations
• UNT Golden Orb Mussel Study
• Larval Fish Sampling

Data Integration to Generate Flow Recommendations

Stakeholder Review

Final Study Report

Peer Review

2013-2014
Middle and Lower Brazos River

- Finalized Study Design Summer 2012
- Continue Data Collection 2012-2013
- Ongoing applied research
  - Geomorphic change modeling
  - Additional riparian study sites
  - Water quality modeling
  - Fish/mussel habitat criteria and modeling

Data Collection/Field Demonstration Workshops
Multidisciplinary Data Collection and Evaluation 2012-2013
Data Integration Workshops
Data Integration to Generate Flow Recommendations 2013-2014
Stakeholder Review
Final Study Report
Peer Review
Middle Trinity River & Lower Guadalupe River

- Ongoing Coordination Meetings with the Trinity River Authority and Guadalupe Blanco River Authority
- Baseline Biological Sampling Efforts to begin in 2012-2013
- Initiate Stakeholder Process in Fall/Winter 2012

Identify/Engage Stakeholders & Orientation Meetings → Collect Baseline Information and Evaluate

Summer/Fall/Winter 2012
Temperature, Dissolved Oxygen vs. Flow

Lower San Antonio & part of lower Brazos
Mussel Habitat vs. Flow
Middle & lower Brazos and lower Sabine

Smooth pimpleback *Quadrula houstonensis*
Fish Habitat vs. Flow
Lower San Antonio
Riparian Species
Productivity vs. Flow

Lower San Antonio
& middle and lower Brazos
Sediment Transport, Floodplain Accretion vs. Flow
Lower San Antonio
Recommendation 3
“initiate and complete the instream flow studies required under SB 2 (2001) in order to develop the type of data required to better understand the amount of instream flow needed for a sound ecological system ...”

Recommendation 5
“proceed with the development of a Work Plan that: ... suggests adjustments to the SB 2 instream flow program to obtain information useful to the SB 3 process....”
Proposes additional monitoring and data collection

Recognizes TIFP as providing valuable information regarding ecosystems in the basin (7 of 9 studies in “Existing Data”)

Calls for studies in other parts of the basin similar to those conducted by TIFP in Lower Sabine (riparian, LWD, mussels, geomorphic)

Calls for studies similar to those yet to be completed by TIFP in Lower Sabine (fish habitat)
## Trinity/San Jacinto Work Plan (Draft)

### Work Plan Priorities

<table>
<thead>
<tr>
<th>Component</th>
<th>Category</th>
<th>BBASC Item No.</th>
<th>BBEST Item No.</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instream/Estuary</td>
<td>General</td>
<td>1</td>
<td>21</td>
<td>Coordinate data gathering and special studies with work plan being developed for Senate Bill 2</td>
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<td></td>
<td>General</td>
<td>2</td>
<td>54</td>
<td>Determine how best to evaluate changes from a &quot;sound ecological environment&quot;</td>
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<td>Instream</td>
<td>Hydrology/ Hydraulics/ Habitat/ Geomorphology</td>
<td>3</td>
<td>1</td>
<td>3-tier study area development</td>
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<td>8</td>
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<td>Imagery analyses</td>
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<td>9</td>
<td></td>
<td>Prioritization of intensive study sites</td>
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<tr>
<td>Instream</td>
<td>Ecology</td>
<td>7</td>
<td>14</td>
<td>Analyses and establishment of baseline ecological conditions</td>
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<td></td>
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<td>8</td>
<td>15</td>
<td>Identification of Indicator Metrics &amp; Species</td>
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<tr>
<td>Instream</td>
<td>Water Quality</td>
<td>9</td>
<td>24</td>
<td>Analyze data and develop findings and conclusions regarding the relationship between water quality data and the proposed flow regimes</td>
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</tbody>
</table>
Colorado/Lavaca Work Plan (Draft)

Work Plan Priorities

- Proposes additional monitoring and data collection
- Highest priority tasks are heavy on desktop and monitoring efforts (less emphasis on field studies)
  - “Literature review and discussion with experts”
  - “Compile and review available information”
  - “Desktop studies …. as necessary, field studies”
- Remaining tasks are similar to those carried out by TIFP studies
  - Special study on perennial pools
  - Identify two aquatic and two riparian indicator species
  - Flows required to sustain freshwater mussels
  - Site specific studies of Guadalupe bass and blue sucker
Guadalupe/San Antonio Work Plan
(Draft)

- **Tier I Priorities**
  - SB2/TIFP Study on Guadalupe (both lower and upper)

- **Tier II Priorities**
  - Riparian Assessment and Monitoring
  - Biological Sampling and Monitoring (develop HSC, investigate floodplain habitat)
  - Geomorphic Studies and Monitoring
  - Effects of Logjams on Habitat, Flooding, Sediment

- **Tier III Priorities**
  - Impacts of Invasive (riparian) Species
Future Research and Monitoring Needs

- Describe relationships between flow; physical, chemical, biological structure and function; and ecological health
- Identify stream locations where flow-environment should be analyzed
- Modeling of flow-fish habitat relationships
- Ecological services of perennial pools
- Identify flows necessary to sustain mussels
- Describe how hydrology is changing
- Describe relationship between flow and benthic macroinvertebrates
- Describe changes in geomorphology
- Identify hydrologic condition and triggers
“The studies being conducted for this portion of the Brazos (by TIFP) will be of incalculable value for the BBEST during first adaptive management reviews. The study results will fill many data gaps for the lower portion of the Brazos Basin and allow the BBEST to refine flow regime recommendations for this portion of the basin. The BBEST has recommended that similar data collection efforts and studies be expanded to cover the remainder of the Brazos Basin and be started in the San Bernard Basin.”
Resources

- TIFP is unfunded by SB 2
  “maximize in-house capabilities”

- Research and Planning Fund shrinking

- Pursuing federal funds to extend limited RPFs

- Substantial funds and resources contributed by river authorities